

Precision

MARCH 1968

Vol. 12 No. 11

Fifty Cents

SHOOTING



*a magazine
by shooters
for shooters*

*Minutes of Annual Meeting Eastern Region NBRSA
Camp Perry Entry Dates Set by NRA
NBRSA Shooting Schedules in this Issue*

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PRECISION SHOOTING

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NOTICE TO ADVERTISERS

PRECISION SHOOTING is printed by letterpress. Display cuts are to be furnished by the advertiser. Advertising engravings will be made at standard rates if good black and white glossy prints are provided. Displays will be made to Advertiser's specifications. All normal composition will be set according to our own standards. Rate cards will be mailed to Advertisers on request.

About The Cover

Colonel Townsend Whelen—One of the original organizers of Bench Rest shooting. He was the first Vice President of the Eastern Bench Rest Shooters Association organized at Johnstown, N. Y., in 1947. All his life, the Colonel was a dedicated rifleman and made many valuable contributions to the sport of shooting and hunting. In 1951, the Sportsman's Press published "The Ultimate In Rifle Precision" for the National Bench Rest Shooters Association. It was edited by Col. Whelen. (He has often been called "The Dean of American Riflemen.")

ON THE COVER OF JANUARY ISSUE

This is a Pope rifle, 28-30 caliber, scheutzen rifle. From top left—The first item is a barrel rest. 2nd item is a block of nickle cases that were the property of Ned Roberts. It was given to Dr. G. by Wm. Curtis, an early bench rester. Next items (3) are some of the cases. Next some of the 2 diameter bullets made in the Pope bullet mould. Next item is a Pope re and decapper. Final item is a Pope lubricator. From the front or muzzle end of the rifle items underneath are: 1) bullet seater; 2) false muzzle; 3) Pope duplex powder measure; 4) rod to seat bullet to a measured distance ahead of the case when muzzle loading the breech-muzzle loading rifle. Property of Dr. A.H.G. Date of mfg. unknown; a super accurate rifle. The mould is not pictured.



National Bench Rest Champions

HEAVY BENCH REST CLASS

Year	100 Yards		200 Yards		Aggregate	
1954	Walker	.4980	McNally	.8190	McNally .7610	
1955	Pride	.3438	Clark	.4612	Clark .4098	
1956	Barton	.4422	Hankins	.5690	Hankins .5104	
1957	Rinehart	.3132	Gottschall	.5124	Hale .4718	
1958	Shipley	.5660	Smith	.6583	Smith .6557	
1959	Gottschall	.3346	R. Hart	.4757	Gottschall .4668	
1960	Pindell	.3986	R. Hart	.7444	Culver .6004	
1961	1 2	Pindell Wilson	.3274 .3038	R. Stolle Deere	.4459 .4766	
1962	1 2	Wilson	.3508 .3348	Walter Coleman	.5045 .5696	Deere .4399
1963	1 2	Yockey	.3446	Boroszewski	.7047	
1964	1 2	Wilson	.3762	Boroszewski	.6391	Boroszewski .5614
1965	1 2	Wilson	.2576*	Wilson	.4351	
1966	1 2	E. Stolle	.3396	Gottschall	.5175	
1967	1 2	Wilson	.3172	Gottschall	.5198	Gottschall .4737
1968	1 2	E. Stolle	.3524	Pluth	.5109	
1969	1 2	Berger	.2866	Culver	.5140	
1970	1 2	E. Stolle	.3333	Culver	.5619	Culver .4705
1971	1 2	Stultz	.5006	Tirrell	.5029	
1972	1 2	E. Stolle	.4344	Deere	.4331	
1973	1 2	E. Stolle	.4722	Deere	.4777	R. Stolle .5251
1974	1 2	Culver	.3092	Carden	.3181	
1975	1 2	R. Stolle	.2982	R. Stolle	.3011*	
1976	1 2	R. Stolle	.3248	R. Stolle	.3696*	R. Stolle .3472*
1977	1 2	Cornelison	.3276	Rucker	.6438	
1978	1 2	Carden	.2838	Pindell	.4927	
1979	1 2	Cornelison	.3122*	Pindell	.5808	Cornelison .4565

Note 1—All data are in minute of angle, including 1954 calculated to MOA from original data reported in inches.

Note 2—The National Championship course of fire was changed from two to four days in 1961. The figures 1 and 2 give the single day aggregate winners, while the third winner listed is the 100 or 200 yard aggregate champion.

Note 3—Smallest one day, two day and National Course aggregates are indicated with asterisks.

HEAVY VARMINT CLASS

Year	100 Yards		200 Yards		Aggregate
1960	Shilen	.3430	Moore	.5950	Moore .5070
1961	Page	.3834	Hutchinson	.4692	Page .4556
1962	Arnold	.3834			
1963	Gottschall	.2742	Bente	.3376	Gottschall .3308*
1964	W. Hart	.3844	Gottschall	.4159	W. Hart .3851
1965	Nadler	.3260	Powers	.3660	Gillman .3820
1966	R. Hart	.3010	Gilman	.3456	Gillman .3438
1967	Arnold	.3394	Cornelison	.3364*	Cornelison .3646
	Cornelison	.2292*	Jezioro	.4317	Jezioro .4440

LIGHT VARMINT CLASS

Year	100 Yards		200 Yards		Aggregate
1960	Page	.5690	Gottschall	.6460	Gottschall .6360
1961	Campau	.4430	Shilen	.5165	Shilen .5236
1962	Campau	.3046*	Campau	.4599	Campau .3822*
1963	D. Hall	.4574	D. Hall	.4444	D. Hall .4509
1964	Gillman	.3860	Gillman	.6700	Gillman .5280
1965	Gillman	.3890	Rinehart	.5653	Rinehart .4782
1966	Cornelison	.3098	W. Hart	.4980	Rogers .4671
1967	Dryfield	.3902	Walker	.4305*	Shilen .4326

SPORTER CLASS

Year	100 Yards		200 Yards		Aggregate
1960	Gottschall	.6720	Rucker	1.0130	McLaren .9440
1961	Walker	.5258	Gottschall	.6152	Walker .6138
1962	Walker	.5450	Page	.5257	Walker .5450
1963			D. Hall	.3925*	D. Hall .4774
1964	Page	.5214	Horowitz	.5860	Nadler .5770
1965	Nadler	.4390	Suchan	.4189	Suchan .4315
1966	D. Hall	.3710	Nadler	.4579	Gillman .4200*
1967	Gillman	.3606	Stannard	.4805	D. Hall .4612
	Shilen	.3582*			

THREE GUN GRAND AGGREGATE

1961	Page	.5691	1965	Suchan	.4561
1962	Page	.5301	1966	Gillman	.4554*
1963	D. Hall	.4887	1967	Shilen	.4887
1964	Gillman	.5299			

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Who shoots SIERRA BULLETS?

John H. Bunch, of course!

He fired a .135" group from 100 yds. and .263" from 200 yds. to win the 1967 Club Bench Rest Championship at Grand Prairie, Texas.

J. E. Ridings, director of the Club, made this comment: "While many bullet companies illustrate small groups shot with unrestricted 'iron monsters' in underground test tunnels, it should be noted that these targets were shot with a heavy varmint class rifle, in a competitive match outdoors on an extremely difficult range."

Mr. Bunch says: "...the bullets were shot directly from the box, although I have a bullet indicator I feel no need to spin the 53 gr. Bench Rest Sierra Bullet."



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FLAT RIVER CONSERVATION CLUB

Winter Match Report

March 24, 1968

MORNING		VARMINTRIFLE		5-5 shot	200 yds.
	Agg.	Caliber	Action	Barrel	Load
1. J. Henry	249-18x	.308	Shilen	Shilen	40gr 4895
2. Simonson	249-14x	22-250	40x	Rem	34gr 4895
3. Raymor	249-11x	225x43	Savage	Doug	28.5 4320
4. Englund	247-11	.222	40x	Hart	25.5 Blc 1
5. P. Henry	246-14x	225x43	722	Hart	28gr Blc 1
6. Stauffer	245-12x	.222	40x	Rem	25.7 Blc 1
7. Rupert	243-10x	225x43	Mauser	Doug	27.7 Blc 1
8. Engstrom	239-9x	.308	Mauser	Doug	40gr 4895
9. F. Budde	238-4x	225x43	Rem	Hart	Blc
10. J. Budde	236-6x	225x43	Mauser	Hart	Blc

AFTERNOON		GRAND AGGREGATE	500-50X possible
1. Stauffer	250-14x	.222	1. J. Henry
2. P. Henry	248-12x	225x43	496-36x
3. J. Henry	247-18x	.308	2. Simonson
4. Rupert	247-16x	225x43	495-29x
5. Englund	247-14x	.222	3. Stauffer
6. Simonson	246-15x	22/250	494-26x
7. F. Budde	246-8x	225x43	5. Englund
8. Raymor	245-8x	225x43	494-19x
9. Engstrom	244-10x	.308	7. Rupert
10. J. Budde	237-8x	225x43	8. F. Budde

Hunter Rifle		5-3 shot matches 100 yds.	
1. Schafer	149-11x	7mm Mag. Rem	action Rembarrel
2. Wickes	149-8x	270 Win Action	and Barrel
3. Phillips	148-7x	270 Rem Action	and Barrel
4. Plite	135-6x	270 Win Action	and Barrel

Jim (.308) Henry is now our official Flat River winter varmint Champion. Dick Stauffer is runner up. Jim won the morning medal and Dick took the afternoon medal with an almost perfect score. Bob Simonson came in second at the grand aggregate. Scores ran very close all day long. It was anybody's race right up till the end.

BENCH RIFLE CLUB OF ST. LOUIS

1968 Match Schedule

April 7	Sunday	Hunter Rifle	10:00 A.M.
April 20	Saturday	Bench Rest Rifle	10:00 A.M.
April 21	Sunday	Light Varmint	9:00 A.M.
		Sporter	2:00 P.M.
May 18	Saturday	Heavy Varmint	5:00 P.M.
May 19	Sunday	Light Varmint	9:00 A.M.
		Sporter	2:00 P.M.
May 26	Sunday	Hunter Rifle	10:00 A.M.

MISSISSIPPI VALLEY REGIONAL CHAMPIONSHIP

June 8	Saturday	Light Varmint	9:00 A.M.
June 9	Sunday	Bench Rest Rifle	2:00 P.M.
		Heavy Varmint	9:00 A.M.
		Sporter	2:00 P.M.
July 14	Sunday	Hunter Rifle	10:00 A.M.
August 10	Saturday	Bench Rest Rifle	3:00 P.M.
August 11	Sunday	Light Varmint	10:00 A.M.
August 18	Sunday	Hunter Rifle	10:00 A.M.
September 15	Sunday	Heavy Varmint	10:00 A.M.
October 13	Sunday	Hunter	10:00 A.M.

NOTICE TO ALL RIFLE CLUB MEMBERS

Check this Match schedule carefully and keep for future reference, as only registered competitors will be allowed to fire on the above dates during matches.

Contact Arthur J. Freund, 1038 Hornsby Ave., St. Louis Mo. 63147. 314 EV8-2718.

CANTON MCKINLEY BENCH REST CLUB

Varmint Match Schedule For 1968

April 28	(Warm Up Match)	2:00 P.M.	Sunday Afternoon
May 5	Day Match	2:00 P.M.	Sunday Afternoon
May 25	Day Match	2:00 P.M.	Saturday Afternoon
June 2	Day Match	9:00 A.M.	Sunday Morning
June 15	Day Match	9:00 A.M.	Saturday Morning
June 28	Night Match	8:00 P.M.	Friday Night
July 13	Night Match	8:00 P.M.	Saturday Night
July 19	Night Match	8:00 P.M.	Friday Night
August 3	Night Match	8:00 P.M.	Saturday Night
August 9	Night Match	8:00 P.M.	Friday Night
August 17	Night Match	8:00 P.M.	Saturday Night
August 23	Night Match	8:00 P.M.	Friday Night
September 7	Night Match	8:00 P.M.	Saturday Night
September 14	Day Match	9:00 A.M.	Saturday Morning
September 29	Day Match	9:00 A.M.	Sunday Morning
October 5	Day Match	2:00 P.M.	Saturday Afternoon
October 20	Day Match	2:00 P.M.	Sunday Afternoon

For further information, contact:

Robert L. Moser, 1025 Shadyside Ave. SW, Canton, Ohio 44710

EASTERN REGION

NBRSA 1968 Bench Rest Match Schedule

Date	Club	Class
April 20, 21	Reed's Run	Open & Heavy Varmint
May 11, 12	Reed's Run	Open & Heavy Varmint
July 20 (Night)	Reed's Run	Open & Heavy Varmint
Aug. 27-30	Reed's Run	Open National Champ.
Sept. 21 (Night)	Reed's Run	Open & Heavy Varmint
June 1, 2	Council Cup	Open & Heavy Varmint
Sept. 28, 29	Council Cup	Open & Heavy Varmint
June 8	Greenville	Open & Heavy Varmint
July 6, 7	Greenville	Open Eastern Region Champ.
Sept. 7, 8	Greenville	Open & Heavy Varmint
June 15, 16	Johnstown	Open & Heavy Varmint
Sept. 14, 15	Johnstown	New York State Champ.
June 22, 23	South Creek	L.V., Sporter, & H.V.
July 13, 14	South Creek	L.V., Sporter, & H.V.
Aug. 17, 18	South Creek	Eastern Regional Varmint Championship
July 30, 31	Tulsa, Okla.	L.V., Sporter, and H.V. Nationals
Aug. 1, 2		Penna. State Hunter Champ.
Oct. 5, 6		

Hunter Class

Mar. 17—Izaac Walton League, York, Pa.
 Apr. 21—Izaac Walton League, York, Pa.
 May 19—Izaac Walton League
 June 23—Izaac Walton League
 July 21—Izaac Walton League
 Aug. 18—Izaac Walton League
 Sept. 15—Izaac Walton League
 Oct. 20—South Creek
 Izaac Walton League, York, Pa.
 Nov. 10—Izaac Walton League
 July 7—South Creek
 Sept. 8—South Creek
 May 5—Council Cup
 June 30—Council Cup
 Oct. 6—Council Cup
 May 12—Sulphur Springs
 June 9—Sulphur Springs
 July 14—Sulphur Springs
 Aug. 25—Sulphur Springs
 Sept. 22—Sulphur Springs
 Hamburg
 Oct. 27—Sulphur Springs
 May 26—Hamburg
 June 16—Dauphin
 Aug. 11—Dauphin
 Oct. 13—Dauphin

Match Schedule Mid-Continent Region NBRSA

1968

Date	Day	Range	Time	Class
April 27	Saturday	Wichita, Kansas	3 P.M.	All
August 17*	Saturday	Wichita, Kansas	12 Noon	All
October 26	Saturday	Wichita, Kansas	3 P.M.	All
May 19	Sunday	Tulsa, Oklahoma	9 A.M.	All
June 22	Saturday	Tulsa, Oklahoma	7 P.M.	All
July 14	Sunday	Tulsa, Oklahoma	9 A.M.	All
August 3	Saturday	Tulsa, Oklahoma	6 P.M. (Proposed)	All
September 15	Sunday	Tulsa, Oklahoma	9 A.M.	All
June 8	Saturday	Kansas City, Kans.	10 A.M.	Unrestricted
June 8	Saturday	Kansas City, Kans.	3 P.M.	Heavy Varmint
October 5**	Saturday	Kansas City, Kans.	10 A.M.	Heavy Varmint
October 5**	Saturday	Kansas City, Kans.	3 P.M.	Unrestricted
July 5, 6, 7		SPEER MATCHES		Grand Prairie, Texas
July 30-31, Aug. 1-2		NATIONAL VARMINT MATCHES		Tulsa, Oklahoma
August 27-28-29-30		NATIONAL UNRESTRICTED MATCHES		Augusta, Ohio

* Kansas State Championship

** Mid-Continent Regional Championship

Range at Wichita, Kansas, located East of Beech Aircraft on No. 54, 6 miles North on Greenwich Road, 1 mile East 1/4 mile North.

Range at Kansas City, Kansas, located 1/2 mile East and 1/4 mile South of South junction on Highways No. 7 and No. 10. Approximately 6 miles North of Olathe, Kansas.

Tulsa Range located NW of Tulsa to Skiatook, Oklahoma, on Highway No. 20. 6 miles West of Skiatook cross creek, take blacktop 1/2 mile South to entrance of John Zink ranch. Enter and follow main road SW to lodge, take left road below lodge to range.

For further information, contact David B. Whittington, 462 West Grand Avenue, Hot Springs, Arkansas 71901. Phones 501-NA3 1812 or 501-NA3 5908.

David B. Whittington, Director
Mid-Continent Region

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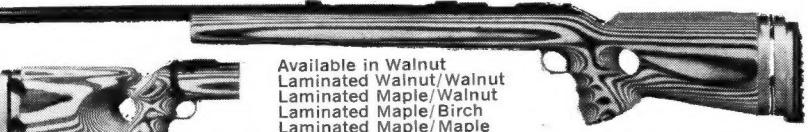
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REINHART FAJEN INC.
 Dept. PS, Box 338, Warsaw, Missouri

Letter to The Editor

York, Penna.
March 24, 1968

Dear Editor:

After being rained out last Sunday, March 17th, the season got under way today, for the Hunter Rifle matches at the Izaak Walton League Chapter 67, York, Pa.

The weather was not too favorable, with heavy gusty winds that threatened to blow us off the range. With this fact established I can now give you the poor scores for the starting match.

Shooting for the first time, was Charles Smith, 2341 Breezewood Rd., York, Pa., Chairman of the rifle range, and winner of the Master Hunter trophy with a score of 224. Charlie will be in Hunter class next meet. Veteran James Loucks of 771 S. Harlan Rd., York, Pa., claimed the Hunter trophy with a score of 217. Bob Sanders, RD 2, Red Lion, Pa., who dropped into the Novice class as a result of his last two shoots, captured this trophy with a 225, which was high score

for the day. The boys in the Novice class will be glad to see Bob move up again, to the Hunter class.

We look forward to more favorable weather, more shooters, and hotter competition at our next match scheduled for April 21st.

Yours truly,
Bob Linn, Secretary
I.W.L.A. Rifle Range Committee

NBRSA OFFICE MEMO

Available from the Secretary's office are the following: 100 and 200 yard targets in cartons of 500 only, \$11.25. (10% discount for affiliated clubs, plus postage on 20 lbs. to proper zone) and on hunter targets, \$16.25 per carton of 500 (plus postage on 28 lbs. to proper zone). Coat brassards, \$1.25 each; and rule books, \$.50 each.

We are out of rule books until a new printing is made; all those who have sent money in will get their books as soon as they are out.

NBRSA membership for one year is \$8.00. This includes a subscription to PRECISION SHOOTING for the membership term. NBRSA associate membership, no magazine, \$2.50 a year. NBRSA Life Membership, \$75.00. Club affiliation fee, \$10 annually. Contact Bernice McMullen, Sec.-Treas., NBRSA, 607 West Line Street, Minerva, Ohio 44657.

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New Editor

With some experience in bench rest shooting, we feel that there is a common interest which will tend to hold us together. Your patience, while the necessary additional experience is gained in editorial work, will be appreciated.

Our shooting experience extends back to the age of nine and a persistent yen to shoot for sport still exists. Participation has been intermittent for the same reasons many of you have given.

Let's take a look at our magazine. For several reasons, not all perfectly clear, we have not been grouping our shots too well. At this writing, PRECISION SHOOTING is three issues behind. It is expected that the February copy will be in your hands sometime before this column is read. Your editor has the responsibility of producing the March magazine and those that follow. With the president, editor, and printer within a ten mile radius, it is hoped a more efficient operation will result.

In the change over, the organ will go back to letter press in the place of offset press. This poses problems of die cuts for photos and other changes. These knots will take time. We should be back on schedule in May.

Your new editor has taken the job as a challenge and feels, in addition, that it will be fun and full of rich experiences.

All those associated with the magazine and NBRSA, we are sure, want to see our sport continue and grow. The correct formula is "TEAMWORK." Give us all the help you can.

For the record, Emory LaFayette Tooly was born November 17, 1910 in the Town of Antwerp, New York. He was educated in the Antwerp High School and The State University Colleges of Plattsburgh and Albany. He holds a Masters Degree in School Administration, and has twenty-nine years of experience in teaching and administration in the public schools of New York State.

LaFayette

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Florida Circuit Pistol Matches

THE UNITED STATES ARMY
MARKSMANSHIP TRAINING UNIT

Public Information Office
Fort Benning, Ga. 31905
Tel. 545-2343

In the battle for bullseyes, completed last weekend at the Dixie Pistol Tournament in Jacksonville, Florida, the U.S. Army Pistol Team outscored the field by sweeping the team matches and winning four of the five gun championships.

Army's MSG. Ralph Thompson's 2651 led his teammates SFC Robert Whitacre and MSG. William Blankenship to a sweep of the Individual Championship. Thompson also won the .45 aggregate with an 888 pacing a three place win by SSgt. Hershel Anderson and Whitacre. Whitacre out x'd strong contenders from the Air Force to win the .22 championship with an 884.

Army Blue soundly defeated Air Force Silver in the Team Championship 3526 to 3493.

National Pistol Champion Blankenship won the Grand Aggregate at the Mid-Winter Championships in Tampa with a 2644 while Maj. Sallie Carroll, the National Woman's Pistol Champion, won the Woman's Championship.

At the Dade County Tournament, in Miami, Maj. Franklin Green, USAF, won the Grand Aggregate with a 2653 outpointing Heugatter's 2647 and Thompson's 2646.

Combining the victories of the training matches fired at Miami, Tampa and Jacksonville, the strong Army Team won twelve of the fifteen major championships. Three distinguished Army shooters, Thompson, Whitacre and Blankenship, accounted for 30 first place awards out of the 69 individual matches.

For the Florida Citrus Circuit Championship, Air Force Blue outpointed Army Gary 10488 to 10484. Army Blue placed third with 10476.

SOUTH CREEK ROD AND GUN CLUB RD #2, Gillett, Pa. 16925

Just a short report on some of the progress of the South Creek Rod and Gun Club.

The land for our club was purchased in the year 1955, just 13 years ago, and since that time a great deal has been accomplished. Since the original club house was built there have been two additions, the last one

to include rest rooms, and last year we built a scoring house and put in electric outlets for trailers and campers.

We have, at present, 18 covered benches for target shooting, and this year we hope to increase this number to 25 benches, and put in concrete slabs and piers. This will also require new target frames.

As a member you are entitled to the privilege of using the range for sighting in your rifles or for practice. Also, the grounds are available to you and your family for picnicking, and where can you find a more scenic place?

This year we have three two-day bench rest matches scheduled: June 22nd and 23rd; July 13th and 14th, Aug. 16th, 17th and 18th—Eastern Regionals.

Also we have three Hunter Rifle matches scheduled: July 7th, Sept. 8th, Oct. 20th.

* * *

February 19, 1968

Dear Sir,

The South Creek Rod and Gun Club has plans to install (25) new benches on a cement base as soon as the weather permits.

We are going to have a name plate on each bench with the name of the donor on it. If you wish to donate one of these benches, please send a \$10.00 donation to the writer with the name you would like on the bench.

If you are interested in this project, please reply as soon as possible. Thank you in advance.

Sincerely yours,
GERALD ARNOLD
107 S. Kenyon St.
Elmira, N. Y. 14904

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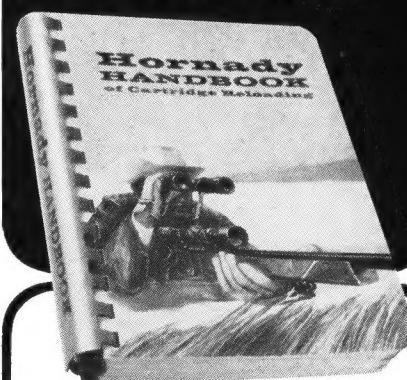
Heavy Varmint Rifle 222.5, Remington 40XB action Shilen Barrel, Shilen Stock, 30X Lyman Scope, Cases, Dies, Protectokaddy carrying case. \$475.00.

Heavy Varmint, 3/4-308 Shilen. Shilen built sleeved barrel, Remington action. Lyman 30X Scope, Cases, Dies, Protectokaddy carrying case. \$475.00.

Light Varmint 222 Rifle, Shilen action, SS&D Barrel, 30X Lyman Scope, Cases, Dies, Protectokaddy case. Previously owned by Dr. Sam Nadler. \$425.00.

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All Gun . . . AND A YARD LONG

By JOHN MADISON

Winchester's new Model 370 shotgun is long overdue. It's a single shot gun made in all gauges from 12 to .410—an honest work gun that is priced to sell and built to shoot.

One model of this gun is more than just economical and rugged. It's awe inspiring. It has a 12-gauge, full-choke, 3-inch chambered barrel that's a full 36 inches long. That's right, Annie. Thirty-six inches. One yard.

In a hardware store rack, this gun towers above its puny companions like a noble redwood in a stand of crabgrass, its long blue barrel soaring majestically toward the rafters. Out in the field, the muzzle of this gun is a full three-minute walk ahead of the man who's carrying it and comes into range of game quite a while before the hunter does, which is useful.

Concern has been expressed that this new gun, which weighs but six pounds, may kick when fired with the 3-inch, 1 7/8-ounce magnum load.

You're mighty well told it will kick.

On a straight overhead shot the gun should drive a man into the gumbo mud to the tops of his five-buckle boots. It's no puny little .410 or dainty 20-gauge with a ladylike pop and a genteel nudge. This is an honest-injun, salty-dog type gun that

will bug your eyes, drain your sinuses, and restore your regularity. From either end, it packs authority.

Every boy should shoot this gun at least once.

Lately, we've been cheating our boys out of part of their heritage. A lot of them have been denied the right to shoot a gun that will smack them loop-legged and make their freckles sparkle. Great-grandad got his lumps from an 8-gauge muzzle-loader, and grandpa had his nose warped by a "Long Tom." It's the American way, and our sons deserve as much.

By all means, train that boy with a flinchless little 20-gauge bird gun that is fast handling and effective.

But somewhere along the way, just to stir up his juices and get his attention, let him shoot the 3-inch shell in the 3-foot gun.

ONWARD AND UPWARD

We've always wondered what the Corps of Army Engineers will do when they run out of rivers to dam. Now we know. They'll begin building new dams on top of old ones.

For example, one of the Corps' current projects will raise the level of the Wister Reservoir on the Poteau River in east-central Oklahoma.

Built in 1948, the reservoir's basin has become badly silted and the level of the reservoir must be raised six feet to "maintain water storage for municipal and industry use and to improve water quality below the dam."

The "improvements" will flood about 3,400 acres of surrounding land, and will destroy waterfowl marshes developed by the Oklahoma Conservation Department.

PUGET SOUND BENCH REST RIFLE CLUB

1968 Shooting Schedule

April 6, Saturday, 9:00 A.M.—100 and 200 yards with light and heavy Varmint rifles.

May 5, Sunday, 9:00 A.M.—200 yards and 300 meters for score with light and heavy Varmint rifles. If time permits we will also shoot Hunting Handguns at 100 yards.

May 25, Saturday, 4:00 P.M.—Northwest Regional Championship for both classes of Varmint rifles. Maybe we will be lucky and have good evening conditions . . . Registered Shoot.

May 26, Sunday, 10:00 A.M.—Registered Regional Championship for the big Bench Rest Rifles, both restricted and unrestricted rests.

June 22, Saturday, 9:00 A.M.—Registered shoot. 200 yards and 300 meters with light and heavy Varmint rifles. Five 5 shot groups at each range with both rifles.

July 21, 9:00 A.M.—Registered State Championship for Bench Rest Rifles, both classes of rests (restricted and unrestricted). In addition to the regular 100 and 200 yard shooting, if possible we will try to do some 300 meter shooting also. Note: July 21 falls on Sunday.

August 24, Saturday, 9:00 A.M.—Registered State Championship for both classes of Varmint rifles.

September 14, Saturday, 9:00 A.M.—Hunter Rifles and Hunting Hand Guns, all shooting at 100 yards.

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Camp Perry Entry Dates SET BY NRA

By LEE L. LaCOMBE

WASHINGTON, D.C. — The 1968 NRA National Rifle and Pistol Championships to be conducted at Camp Perry, Ohio, in August by the National Rifle Association will include two traditional Smallbore Rifle International Postal Team Matches.

They are the Randle Women's International Postal Team Match, fired on August 13, and the Dewar International Postal Team Match, fired on August 14.

The first event on the three-week calendar of activity will be the Police Instructor School, August 1-3, followed by five days of pistol competition. Smallbore shooters will be center stage from August 10 through August 16. Two schools are slated during this time. They will be the NRA Instructor-Junior Schools. The former will be held August 12-15 and the latter on August 15-16.

High power riflemen take the spotlight from August 17 through August 23 when the Palma Team Match, another international event, will be held.

Closing dates for match entry in the various events have been released by the NRA. Entry in the individual pistol matches must be accomplished by 6:00 p.m., July 15; by 1:00 p.m., August 4, for the .22 caliber team match; by 1:00 p.m., August 5, for the Center Fire team match; by 1:00 p.m., August 6, for the .45 caliber team match, and by 1:00 p.m., August 7, for the NRA Service Pistol team match.

Entry deadline for the NRA individual smallbore rifle matches will be 6:00 p.m., July 22. Entries close for the individual high power rifle matches 6:00 p.m., July 29.

NRA officials also said that programs and official entry forms for this year's championships are expected to be in the mail by May 1. All competitors in the 1967 matches, except active service personnel, will automatically have a program mailed to them this year.

Active service personnel, individuals who have had a change of address recently, and all others interested in firing in this year's matches, should submit a request in writing for a program to the Competitions, Training and Facilities Division of the NRA in Washington as soon as possible. Applications for participation in the 1968 National Championships will be accepted only on official entry cards distributed with the 1968 program.

A service charge of seven dollars (\$7.00) per day will be assessed each competitor, student and sponsor for each phase of the match to cover housing, three meals per day, and all services required to operate the camp. The charge is due whether or not the individual lives in on-camp housing. Students in the Police or Instructor-Junior School, who are not billeted in on-camp housing, will not be required to pay the service charge.

There will be two housing facilities available at Camp Perry. On-camp housing will consist of quarters for individual participants in the competitor area. The family quarters

available will be cabins in the Squaw Camp area and rooms in the motel or the clubhouse.

A ten dollar (\$10.00) deposit per person, for security of items issued, will be collected by the camp Billeting Office when supplies are issued to those staying in the competitor housing area. This deposit will be refunded in full upon return of the issued items.

A similar deposit of ten dollars (\$10.00) will be charged to those occupying cabins in Squaw Camp. A reservation deposit for motel or clubhouse rooms will be fifteen dollars (\$15.00). These deposits must accompany reservation requests mailed to the Clubhouse Manager, Camp Perry, Ohio, 43452, and will be credited toward the room charge.

DISTINGUISHED CREDITS CAN BE OBTAINED IN SERVICE WEAPON MATCHES

Credit toward the Distinguished Pistol Shot Badge and the Distinguished Rifle Badge will be given in the two NRA Service Weapon matches. The National Board for the Promotion of Rifle Practice has agreed to recognize scores fired in the two matches.

The President's Match will consist of an aggregate of the first four fired matches in high power rifle competition. In the pistol competition the aggregate of scores fired in the National Match Course event with the .22 caliber, center fire and .45 caliber pistols will constitute the President's Match.

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Minutes of Annual Meeting of

EASTERN REGION NBRSA



Held at Holiday East Motel
Harrisburg, Pa.
January 13th and 14th, 1968

Mr. M. H. Walker, Director of
Eastern Region, Chairman



Present were Geo. Kelby, Dep. Director; Wm. Kappel, Dep. Director; and Dr. A. H. Gareelon, President. Total count of members present, 58.

Meeting opened at 9:40 A.M.

Minutes of the 1967 meeting were read and on motion by J. M. Reece and seconded by H. Austin were approved.

J. M. Reece, treasurer, gave the financial report. Copy of report attached. Walker appointed R. Browne and H. Culver to audit treasurers report.

Walker requested bids for the Bench Rest National Championship matches from affiliated clubs. Dates for this had been previously set and are Aug. 27, 28, 29 & 30, 1968. One bid was received from Mrs. Brown to hold the match at Reeds Run Range. Motion by R. Browne and seconded by T. Boughton that the match be award to Reeds Run. Passed unanimously.

Motion by R. Browne and seconded by R. Otis that the 1969 Varmint and Sporter National Championship matches be held on Aug. 26, 27, 28, & 29, 1969. Motion passed unan-

Motion by Stinehour and seconded by R. Browne that if the Eastern Region is awarded the Bench Rest National Championship Matches for 1969 they be held on July 1, 2, 3, & 4, 1969. Voting yes 14, no 5. Passed by majority.

At this point a discussion of the magazine (Precision Shooting) was held and various suggestions were made; that every attempt should be made to get it out on time and then attempt to build up the magazine and the advertising; that all members put forth a real effort to increase the membership in NBRSA and sell subscriptions to the magazine as an added help.

Walker appointed a membership committee as follows: R. Browne,

chairman; John Dewey, Thomas Briggs, and Bob Hart—new members is the job.

The following motion was made as a recommendation to the directors of NBRSA. Motion by Stinehour and seconded by R. Stolle that the cost of the magazine to NBRSA be coincidental to the cost of printing and mailing. Motion passed unanimously.

The minutes of the 1967 NBRSA directors meeting was read by Dr. Gareelon, President. A general discussion of the new Varmint & Sporter class rules was held; no action.

A discussion of the Hunter class rules followed with a question on the interpretation of the magazine rule not being specific in regard to the two or more shells and that any two shells of any caliber or size could meet the requirements of the rule.

The following motion was made as a recommendation to the NBRSA directors: Motion by R. Hart and seconded by R. Browne that the rule be changed to read that: A magazine shall hold two or more shells that will feed, chamber and fire. Motion passed unanimously.

Motion by R. Brown and seconded by R. Skakel that the next annual meeting be held in the Pittsburgh area. Motion lost.

Motion by A. Hoyer and seconded by R. Niklaus to hold annual meeting in 1969 at Holiday in Town if suitable arrangements can be made. Passed by majority.

Walker appointed Kenneth Hostetter to make the necessary arrangements for next annual meeting.

A discussion of time to hold this meeting with January 11 & 12, 1969, suggested.

Motion by R. Browne and seconded by R. Otis that the meeting be continued tonight to conclude the business. Motion passed.

Match scheduling group to meet at room 462. This was a committee of the two Dep. Directors and representatives of all clubs to establish match dates for all bench rest matches and hunter class matches in the Eastern Region. The finished match schedule is attached to this report.

Meeting was adjourned for dinner and reconvened at 8 P.M.

Walker requested A. Angerman to present the new records established in 1967. Twelve new records were established.

R. Browne reported for his committee on ideas to assist Precision Shooting magazine; a number of suggestions were presented and where possible will be tried.

Motion by Clyde Hart and seconded by S. Borsh that a loose flyer be placed in P.S. as a ballot for the mailing in of votes for the offices of Director, Dep. Director of Atlantic division, and Dep. Director of Great Lakes division. Flyer will have names of nominees and space for write-ins voting and complete instructions. Motion passed.

Meeting closed and reopened at 9:30 A.M., January 14, 1968.

Meeting reopened at 9:30 A.M. Jan. 14 with about one quarter of members present due to bad weather, a severe ice storm. A discussion was held on the possibility of holding this meeting in November to avoid bad weather. Dates suggested were Nov. 16 and 17. K. Hostetter to check on facilities for this date. Members' reaction to this proposed change will be appreciated.

Meeting adjourned at 10 A.M.

ROBERT W. HART
Acting Secretary

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Olin Acquires W. R. Weaver Co.

NEW YORK, March 28 — Olin Mathieson Chemical Corporation will acquire W. R. Weaver Company, El Paso, Tex., the world's largest producer of telescopic sights for firearms, under terms of an agreement reached between the two companies today.

The announcement was made by Gordon Grand, president of Olin and William R. Weaver, president and founder of Weaver.

The Weaver concern will be acquired for an undisclosed amount of Olin stock. Under its present name and management it will be a wholly owned Olin subsidiary responsible to W. L. Wallace, Olin vice president and general manager of the Winchester-Western Division.

A pioneer in the development and production of quality telescopic sights in the United States, the Weaver Company has been family-owned since its founding in 1933. They produce 16 different scope models, mounts and other accessories. The company employs about 300 people, has 202 agents in other countries and distributors throughout the United States.

"This purchase will add a rapidly growing product line to Winchester-Western," Mr. Grand said. "Under Olin's recently announced growth program, division management has been given the responsibility of expanding their current operations into related fields. Group management, or those responsible for two or more associated divisions, have been directed to add products or services that complement existing activities while, on the corporate level, we are seeking new businesses that are unrelated to the present operations."

"Weaver's current distribution and product policies will remain unchanged," Mr. Grand said.

In addition to the sporting arms and ammunition operations of Winchester-Western, Olin produces industrial and agricultural chemicals; non-ferrous metals; forest products; fine paper and film.

New "Crosshair Peep"

Redfield Gun Sight Co., Denver, a leading manufacturer of quality rifle scopes, has announced the availability of a unique new reticle which is

bound to find favor among shooting buffs. Called the "Crosshair Peep" it's an improvement upon the dot reticle favored by many precision shooters. The Crosshair Peep provides for a clear view of the target through the center of the "dot", rather than obliterating a portion of the target as does the dot or post reticle.

Redfield suggests also that the .0065 inside diameter of the peep, providing different subtensions at various powers in a variable scope, offers more effective range-finding possibilities than a dot or post reticle. Some expert shooters who have tried the new reticle have reported that it is also useful in leading a moving target by using the edges of the peep as a reference.

The addition of the Crosshair Peep brings the total number of no-extra-charge reticles offered by Redfield to six. Others are the 4-PCCH (4-Post Center Crosshair), the 4-Plex, the FCH (Fine), MCH (Medium) and the PCH (Post).

The dot reticle is furnished at extra cost, as is the exclusive Redfield ACCU-RANGE reticle which indicates range and is being used as a sniper scope by some of the U.S. armed forces.

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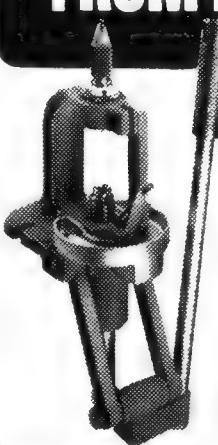
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Letters TO and FROM

"Mike" Walker
RD 1, Warren Rd.
Mohawk, N. Y.
Dear Mike:

I am in need of several bits of information which you, as a board member of NBRSA and your source of information at Remington, I am sure you can supply.

Problem #1 is the question of the working magazine which was discussed at the convention at Harrisburg. We are allowing the 788 action chambered for .308 if the mag. is also altered to accept and feed .308 with 110 gr. bullets. In your opinion from the discussions mentioned, am I legal so far as NBRSA is concerned?

Secondly, we are attempting to improve our rifle range and have run into some problems with the board which boils down to technicalities. And here is where I need the authoritative voice of someone from your company at Remington to either back me up or down whichever the absolute fact demands. It is this. What is the minimum distance in front of a trap range firing line that can be relied upon to be absolutely safe? All types of ammo, including hand loads are used on occasion. Enclosed is a sketch of the layout. I have been accused of rattling skeletons when I contend that 200 yards is not foolproof. What says Remington ballistics people? Please.

Incidentally on the personal side, after listening to you praise your 700, I bought one in .308 and using 168 gr. Sierra Internationals and not touching the gun, she shoots 3/4" or better and this in the hands of a novice who never owned a center fire rifle before and with a borrowed 6x scope.

Mike, I hope you can get me some answers. Till then—

Sincerely,
Charles W. Smith
2341 Breezewood Dr.
York, Pa.

* * *

Dear Charlie:

The interpretation on Hunter Class rules you have made is correct. As long as your M/788 will satisfactorily feed any factory .308 cartridge, it is considered legal. The loaded cart-

ridges being used in Hunter Class Matches **do not** need to feed through the magazine.

In my opinion, 200 yards could not be considered as a safe clear area for a trap range unless: (1) People in the line of fire were wearing safety glasses with side shields (at minimum range of 200 yards), and (2) Trap loads containing not larger than #7-1/2 shot were always used. 100% control on both of these items would be almost impossible to establish.

Since I am not acquainted with your range on such items as wind velocities and directions and other important factors, the above is made only as a suggestion. I believe you could eventually be in trouble. Remington usually considers 300 yards as the necessary clear area.

All factors need to be considered before conclusions can be drawn.

Sincerely,
M. H. Walker

Dear Mike:

I have seen your name frequently in "Precision Shooting", and in the magazine which preceded it.

In 1958 I bought a Rem. 722 in .308 Win. cal. to use in the World Championship Running Deer matches at Moscow. The front sight (Redfield Olympic) fell off. The 6-48 screws pulled out of the foresight bore. Don Carroll arranged to have repairs made.

Now our DCRA has set a new specification for high power rifles. See photostat enclosed.

Redfield makes a rig which looks like a rear telescope base, to fit on the receiver bridge, which permits loading 7.62 Nato rounds from the charger, or 'clip'.

Mr. Ray Munday here in Toronto does not have any Remington part listed in the component parts sheet for the Model 40-XB centre-fire repeating rifle to do the same job.

Question: Are the guides milled into the receiver? Or is there a special part which I can buy from you?

Second Question: Would a 1 turn in 14" twist be better for the 144 gr. 7.62 Nato bullet? I know this is what

the bench rest shooters use in preference to anything else. John Foster of the USAMU advised me of this at Camp Perry where I was Adjutant of the Canadian Pershing Team in 1965.

Third Question: What is the difference in throating for the Nato 7.62 or National Match X118, compared to the commercial .308 Win. chamber?

Yours respectfully,
Edson Warner, Major
Vice-President, P. Quebec
Rifle Assoc.

Member-of-Council, DCRA

P.S. I will submit my old #722, very much as is, to the DCRA with an Anschutz front sight and an Australian "Central" 1/4 min. rear sight.

P.P.S. What current Remington rifle would you recommend to fill the DCRA specifications? We can design rear sight base adaptor to mount our A. J. Parker "Twin-Zero" and Parker-Hale 5c rear sights.

* * *

Major Edson Warner
18 Clough Street
Lennoxville, Quebec
Dear Major Warner:

Enclosed is a brochure on the M/40XB which may answer some of your questions.

The clip slots are milled into the receiver bridge of the M/40XB. No special part is available for this purpose.

I, personally, would not use 14" twist in the 7.62, not even for bench rest. Some of the erratic results obtained by U.S. bench shooters is chargeable to using too slow twists. Dave Hall, one of the best .30 caliber bench shooters, is using 10" twist at the present time. I personally prefer 12" for bullets up to the 168 grain Hollow Point Boat-tail and 10" for the 190 Hollow Point Boat-tail and up. These two bullets are the most accurate of any available. The difference in accuracy chargeable to a fast twist, such as 10" compared to slow 12" and 14" twist in .30 caliber, is only about 5% maximum with good bullets. With poor bullets the faster twist will shoot best.

Throating recommended by the U.S. for 7.62 Nato National Match is longer, but of a different shape. A .050" included taper per inch is used with the .305" Dia. pickup point at .250" from the chamber neck. The throating recommended by the Sporting Arms and Ammunition Manufacturers' Institute is a cylindrical section .090" long by .310" diameter with a .061" included taper per inch

lead with the .305" Dia. pickup point at .196" from the chamber neck. Overall length of throat, including the angle at the chamber mouth for the Government chamber, is .350" and for the SAAMI chamber .277". We do not approve of the .310" diameter for the M/40XB. We are now using .3085" diameter with other dimensions as near to SAAMI as possible.

To meet the weight limit of 11.5 pounds specified by D.C.R.A. one could use the Repeating standard barrel M/40XB although some sights would possibly put it one or two ounces over the limit. If a 26" barrel was specified, this would compensate for extra heavy sights.

It is hoped this information is adequate for your purpose; if not, feel free to contact us again.

Sincerely,
M. H. Walker
Ilion Research
Division

Dear Mr. Walker:

Since most of your recommendations are to "free float" a barrel for best accuracy, would you please suggest the best method of doing this on a Remington New Model 700 Varmint Special, in .22-250 Rem.—? You also recommend that it is especially important that the guard screws not touch the stock, but by what method can one prevent a solid contact of receiver, magazine box, and the guard on a 700 BDL—? Devcon Plastic Steel will be my bedding compound, and is about an inch in front of the recoil lug sufficient? Naturally, the complete action will also be bedded in the stuff.

This gun, Serial No. 263094, is my second BDL. The first had a conventional weight barrel. Neither gun shot, or shoots, as well as the sorriest gun Elmer Kieth ever had! Any suggestions—? (Not for Elmer Kieth!)

Too, will you please explain why the bullets are seated so deep in the case in Remington factory .22-250 loads—? It would be nice to have a gun with a throat to match this loading, but expect such an animal would be hard to come by!

Thanks in advance.

Doak Criss

* * *

Mr. Doak Criss
1735 East Highland Drive
Hobbs, New Mexico 88240

Dear Mr. Criss:

If your .22-250 M/700 Varmint Special will not shoot approximately 1-1/4" or better with factory Power-Lokt ammunition or approximately

1" with the best bullets in handloads, it should be returned to Remington for repair or replacement.

Ordinarily, in the construction of these rifles, the magazine has some clearance between the guard and the receiver so that tightening the guard screws should not give an interference between these parts. Devcon bedding will operate satisfactorily if done in the proper manner. However, the same rules apply as when the action is bedded in the wood. The June 1967 issue of Precision Shooting had a dissertation on the bedding of receivers. If you have not already done so, it is suggested you read this carefully.

The support for the action, when the Devcon plastic material is used or any other epoxy type compound, should be such that the receiver rests high enough in the wood to prevent solid interference with the magazine and guard. Your best bet is to leave pads or install projections which will hold the receiver in its present location or a few thousandths higher. If the guard does not fit tightly in its recess it is suggested you epoxy bed this also.

Have you tried different seating depths with the .22-250 to determine which gives the best accuracy? Ordinarily this caliber does not shoot as well with the bullet seated out to touch since extremely large pressure variations occur with this type of bullet seating.

Sincerely,
M. H. Walker

Dear Sirs:

As your name and address are listed in the #7 Speer loading manual, as a reliable source of loading information I hope you can help me with a problem, namely; Where can a person purchase precision, soft-swaged .25 caliber bench rest bullets?

I suppose I can be classed as a non-conformist, but I fail to see why a .25 caliber target rifle, when built with the same care and precision, should be any less accurate than a .22 or 6mm. To this end, I am currently in the process of building up such a rifle to meet light-varmint class specifications. My rifle has a P.O. Ackley five groove, eleven inch twist barrel and is chambered for the standard .250 Savage cartridge.

Short of investing about \$200.00 in a set of Biehler and Astles dies and swages, perhaps you could recommend some suitable, available bullets. Possibly you could also suggest an accurate bench-rest load for the .250,

if this would not require reaching too far back into history.

I would also like your opinion of the L.E. Wilson hand bullet seater. Will this tool seat bullets more accurately than the regular RCBS seater die?

Your opinions and advice would be greatly appreciated as information of this nature is extremely scarce in these parts. Thank you.

Yours truly,
Kerry Wright

* * *

Mr. Kerry Wright
11767 - 79A Avenue
North Delta, B.C., Canada
Dear Mr. Wright:

At the present time we do not have any information on the availability of soft-swaged 25 caliber bullets. To obtain accurate bench rest bullets, strict control of the bullet jackets is necessary. Since there is no great interest in the 25 caliber at the present time none of the manufacturers are making bullet jackets capable of bench rest accuracy, at least not to our knowledge.

With 11" twist you should stick to bullets less than 100 grain weight. The best powder would probably be 3031 or 4198.

Biehler & Astles are no longer making bullet dies. The following is a list of the shops making bullet dies taken from the RCBS catalog. In addition, Ross Sherman, Dryden, N. Y., makes carbide bullet making dies.

Bahler Die Shop
P.O. Box 386
Florence, Oregon 97439

Jack Moffett
726 Fugate Avenue
Charlotte, North Carolina 28205

LLF Die Shop
1281 Hiway 99 North
Eugene, Oregon 97401

Frank A. Hemsted
7272 Valaho Drive
Tujunga, California 91042

Hand bullet seaters are usually considered more accurate than press type bullet seaters. However, the sizing of the case neck has more to do with accurate bullet alignment in most cases than the actual bullet seating operation. Actually, to obtain good bullet case alignment, the chamber should not allow neck expansion by more than .003 - .004". The cases should be either outside turned on the neck or by some other means made uniform in wall thickness to within .001". The case mouth should be trimmed evenly on the end and

(Next page please)

chamfered evenly. The sizing die should be of a size such that the case neck will not be reduced more than is necessary to hold the bullet. The entrance to the neck portion of the sizing die should be finished concentric and smooth in order to prevent offcenter sizing. If the case neck is sized concentric with the body, it is not difficult to seat bullets concentric also.

Sincerely,
M. H. Walker

Mr. Jefferson D. Ackor, Editor
PRECISION SHOOTING
Winthrop, Maine

Dear Mr. Ackor:

On Feb. 6 I wrote you about getting a copy of a bullet spinning story from the March '64 issue of your excellent magazine.

This is NOT a needle for a reply, but, rather two more queries.

Last night I discovered I have no Jan. or Feb. '68 issues. The date on address label says 1-10-67. With some kind of rude shock it appears I am "out". Hope this is not true because I do not want to miss any. What can I do (besides paying for a new subscription) to pick up where I guess I have left off?

Enclosed, stamped envelope for this purpose. I will rush whatever money is due you, plus membership in the NBRSA. And sackcloth and ashes for any neglect.

Also, tried to order a cartridge spinner from L. E. Wilson. He has stopped making them. Now I am at a loss where to get one and if that fails, a good design so one can be made. Your contributors seem to know all about things like this. Would like to get in touch with them.

Sincerely,
Erik Miller

* * *

Mr. Erik Miller
3680 Dixie Canyon Ave.
Sherman Oaks, California 91403

Dear Mr. Miller:

Jeff Ackor has sent your letter of February 27th on to me for reply.

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G. R. DOUGLAS COMPANY, INC.
5504 Big Tyler Road
Charleston, West Virginia 25312

We have a new editor for Precision Shooting; Emory Tooly, 8 Cline St., Dolgeville, N. Y. 13329, who we hope will be able to keep up with its publication and will certainly notify you of subscription expiration.

For a cartridge spinner it is suggested that you contact Robert W. Hart & Son, 401 Montgomery Street, Nescopeck, Pa. 18635. Perhaps he can help you since he has at least indicated that he intends to market a bullet spinner.

Sincerely,
M. H. Walker

Mr. Jefferson D. Ackor
Precision Shooting
Winthrop, Maine 04364

Dear Sir:

I hope you can help me locate Ted Holmes, who had a gun shop at Mattoon, Illinois. He built a very accurate .219 Don. Wasp for me a few years back and it shoots extremely well with bullets he made for me but I have been unable to find any other bullets that perform as well. What I am interested in is a good set of bullet making dies to make my own bullets. I have been making bullets for several years in some locally produced dies but they do not produce bullets of the quality that I want. I realize that much of the skill lies in the maker but at least I want to start with dies that are capable of making fine bullets.

I thought perhaps Ted could make me a set of dies like the ones he uses or tell me where to obtain good dies.

I understand that the well-known B & A dies are no longer made. If I cannot locate Ted do you know where I could get high quality dies? My supply of Holmes bullets are exhausted.

I will greatly appreciate any help you can give me.

Sincerely,
Forest C. Brown

* * *

Mr. Forest C. Brown
Brown's Studio and Camera Shop
2020 Sherman Avenue
North Bend, Oregon 97459

Dear Mr. Brown:

We do not have Ted Holmes' present address. We do know that he has been reported to be out of the gun business. It is also reported that he sold his equipment to the Walkers in Kentucky. Perhaps if your letter is printed in Precision Shooting one of the readers will be able to come up with Ted Holmes' address.

For good bullet making dies it is suggested that you contact Ross Sherman, Dryden, New York 13053.

Sincerely,
M. H. Walker

Dear Mr. Walker:

I noticed your excellent placement in the 1967 NBRSA National Varmint and Sporter Rifle Championships as reported in November 1967 Precision Shooting. In the same issue I also noted your address, so I am taking the opportunity to write you in the hope that you may give me some advice.

In the listing of shooters equipment I see that you used a 10X Bushnell scope in one class and a 10X Lyman in another, on 40X action rifles. While the 10X Lyman could be a target type scope, though it is my guess that it is not, the 10X Bushnell seems likely to be a hunting type scope. Since your use of this type scope parallels what I would like to do, it seemed you would be the logical one to advise me.

I am hoping for delivery soon of a Remington 40XB in 6mm Rem. caliber, which I want to scope with a 10X Lyman All American. The outfit to be used for woodchucks and possibly some bench rest shooting. The usual mounts seem to be rather closely spaced for such a long and heavy scope, and perhaps not too likely to deliver all the accuracy the rifle is capable of. So, what I would like to know is: how do you mount this type scope on this rifle?

If you would be so kind as to inform me on this matter, I will be most appreciative.

Feel free to be brief, but if you used a custom made mount for this, I would appreciate knowing where I might obtain the same and the approximate cost, if known.

Sincerely,
Ronald O. West

* * *

Mr. R. O. West
Route 7, Box 290A
Zanesville, Ohio 43701

Dear Mr. West:

The 10X Lyman All-American, which I used on my Sporter at Wapwallopen, has been modified to 15X with a longer objective. The 10X Bushnell is also an internally adjusted scope and had not been modified. For this reason a spotting scope was necessary particularly at 200 yards.

Both of the scopes were mounted with ordinary Weaver 1" mounts with the extension front block which moves the front mount 3/4" forward. This mounting is certainly adequate

for the 10X Lyman All-American. You will find this combination on your Remington M/40XB 6mm one of the best possible for both a varmint rifle and bench rest shooting. At 200 yards, however, the 10X is not quite adequate for spotting bullet holes.

It is hoped that some day there will be a good 15 to 20X hunting type telescope.

Sincerely,
M. H. Walker

Dear Mr. Walker:

I hope you can find time to write to me in answer to some of my following questions.

I assume you are the Mike Walker connected with Remington firearms, whose products I think a great deal of. In fact, I own the following: Nylon 66 (which was presented to me by your Company); 1100 12 gauge; 742 308 calibre (which shoots 1 1/2" groups); 40x 6mm, Remington; and in the model 700, a 222 magnum, 22 x 250, 7 mm Remington mag.

My reason for writing is that we find my 40X is not shooting as consistently as the accuracy claimed of it — .50.

Could you please supply me with the address of C. Hollidge, whose bullets were used for the accuracy test by the Remington factory.

I am coming to America in February and hope to buy some 4064 powder, which is illegal import into Australia, but which I intend to overcome by bringing it back in my personal luggage. With these two missing components, I hope to duplicate the factory test. Could you please tell me where I could buy 4064 in New York City or San Francisco.

Could you please explain to me why these tests were shot with a 73.5 grain bullet yet the factory ammunition was originally offered in 100 grain.

The scope which I am using on the 40X is a Bausch and Lomb 6 x 24. I realize in your position you have to remain diplomatic, but I understand that many of the bench rest shooters in America have replaced the factory mounts on this rifle with Unertl. If this is so, could this be the reason for my problems?

I appreciate that you must be very busy with your many interests, and because of this, is there anybody you suggest I could write to in America who shoots the 40X and 6mm Remington. I am mainly interested in using these weapons for varmint shooting.

My next request may seem a little bit stupid, but I do find the Nylon 66

ideal for certain of my shooting but the problem is that I cannot get it to shoot consistently with the scope, no doubt due to the fact that the barrel and receiver cover are not attached. Do you know of anybody who has overcome this problem and how they have achieved it?

Assuming you are interested in all aspects of shooting, you may be interested in my observations regarding the use of the 22/250 on game here in Australia. Up on the plains of New South Wales, we had a 270 Winchester, 7mm Remington mag. and my 22/250 and at 300 yards it was impossible to tell the difference between the results of animals shot by the three calibres.

The advantage, we felt, lay with the 22/250 due to its mildness which seems to encourage more accuracy as the riflemen can shoot with more comfort.

In May 1967 I took the 700 B.D.I. and 22/250 calibre to New Zealand and except for one badly placed bullet, due to the position of the animal, all my shots were one shot kills on Red Deer and Chamois. So from my experience, I am very much impressed with the results of this calibre.

With reference to your other calibres which I have used, I find the 222 magnum had a limit of 230 yards when shooting kangaroos on the flat plains where there was a wind, whilst one of my companions and I felt the 7mm Remington magnum was a little too much at both ends for prolonged comfortable shooting. My two friends and I have decided that the 270 Winchester is probably the best all rounder for Australian and New Zealand conditions.

One comment I would like to make is that I have been most surprised at the accuracy of my Remington rifles, which have been glass bedded with the barrel full floating and all average under 2".

If there is any way in which I can help you with information on the Australian market or shooters and shooting conditions, please don't hesitate to ask me.

Although I am a ladies dress manufacturer, I used to write for one of our two national shooting magazines prior to starting my own business.

Due to my late father manufacturing fishing rods I have many contacts in the gun trade itself.

If there is any way in which I can assist Remington in Australia, I would be only too happy to do so.

Yours sincerely,
Thomas Wardle

* * *

Mr. Thomas Wardle
60 Flinders Lane
Melbourne Victoria 3000, Australia

Dear Mr. Wardle:

The address for Crawford H. Hollidge is: Cotuit Road, Marstons Mills, Massachusetts 02648. However, I think you will find that the 60-grain Sierra Hollow Point 6mm bullet, or Remington 80-grain Power-Lokt, will be the equivalent of almost anything you purchase. 36 grains of 3031 works well with the 60-grain bullet and 35 grains works well with 80-grain bullet.

I would not attempt to buy powder in New York State since a license is required. I believe, however, that you should be able to buy 4064 powder at any of the gun shops in San Francisco, i.e., Accuracy Bullet Company, 2443 41st Street, or Markell Inc., 4115 Judah Street. Suggest you call them on the phone before making a trip.

There are no really accurate 100 grain bullets available for the 6mm. The heaviest bullet available which produces good accuracy is the 80 grain Remington Power-Lokt which is just now becoming available in reasonable numbers.

My own experience with the 6x24 Bausch and Lomb led me to dispose of it after considerable modification. I was never able to get it to shoot as well on any of my rifles as the single power scopes which were available. The nylon inserts on the rubbing surfaces of the front mount gave excessive friction under any of the circumstances which I tried including all types and methods of lubrication. These inserts were finally replaced with brass which alleviated the friction but probably introduced other problems. The brass would certainly wear the aluminum tube more unless kept absolutely clean and well lubricated. The rear mount was replaced with a Culver which was a Unertl type mount for the 1-1/4" tube of the B & L. After all these modifications it still did not give the kind of accuracy on bench rest rifles that I expected.

Several complaints on the 6mm were solved by returning the reloading dies to the manufacturer. The neck and body of the sizing dies were not properly aligned causing misalignment of the neck and body of the case and consequent accuracy difficulties. If there is a way that you can check this, it would be wise to do so. This can most readily be done by checking the runout of the

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neck with an indicator with the body of the case resting in a V-block.

The Nylon 66, although it has provision for mounting the "tip-off" telescope sights for .22 Rim Fire rifles, was not actually designed for use with telescope. It is a "knock-about" plinking rifle designed for use with metallic sights applied. The only suggestion I have towards solving your accuracy problem with tele-

scope would be to attempt using the long eye relief telescope mounted completely on the barrel. Since there are no mounts made especially for this purpose, you would need to enlist the aid of a good custom gunsmith for recommendations and the mounting.

Sincerely,
M. H. Walker

raise the impact point, although this is seldom necessary with issue sights.

In general, the front sight must be raised since the rear sight seldom can be lowered enough to make a total correction. The rear sight is best left alone initially and used for final small zeroing corrections. When raising the front sight, overcorrect with a taller than necessary sight and then file it down to the proper height as you test fire and rezero the revolver. When filing, cover metal surfaces adjacent to the sight with tape to protect against any slips with the file. A small portable vise with padded jaws is almost mandatory for steady work.

If you are only a casual target shooter and plinker, squaring-up the rear sight notch and installing a taller front sight usually is all that is required. On Remington revolvers, with their top strap groove rear sight, lay tape along the entire strap and in the groove forward of the V notch. Then square the notch. A 6-inch flat file used on edge cuts a square notch of about the right width. File until the V just disappears. Save any further deepening for final adjustments.

On Colt revolvers, the rear sight notch is on the hammer lip which covers the exploding cap preventing fragments from flying up and back at the shooter. Square the V notch with the 6-inch file or with a narrow stone or grinder if the casehardening on the hammer precludes use of a file. For safety reasons, DO NOT deepen the V to the point where you cut through the bottom of the hammer lip.

If you take your shooting more seriously, a windage-adjustable, dovetail base rear sight can be installed. The sight can be made from a piece of brass, silver, or steel. On the other hand, a Kentucky-type sight, available from Dixie Gun Works for as little as \$1.00 can be modified to fit. In either case, cut the sight notch square. To install the sight on Remingtons, cut an appropriate size dove tail slot in the top strap about 1/10-inch forward of the hammer opening. Do not file the slot deeper than the sight groove. On Colt revolvers, the only place you can mount a dovetail rear sight is on the rear of the barrel. Unfortunately this shortens the sight radius considerably.

If you are a real bug on target shooting and accuracy, you need a rear sight adjustable for both windage and elevation and you are almost exclusively limited to Remington revolvers. Micro Sight Company furnishes their number 1P rear sight

—Reprint from GUNS & AMMO
Magazine, April 1968 issue

By ROBERT E. COLBY

Charcoal Burners CAN SHOOT!

Even an average shooter can hold three inch groups at 25 yards with a cap and ball revolver. An expert can do this well and better at 50 yards, but not usually with the average cap and ball revolver and its issue sights. However, the cap and ball revolver is as inherently accurate as most modern handguns even though it is over a century old. Before you can call it a really good shooter however, the sights must be replaced or at least modified.

Seldom a cap and ball revolver is found with issue sights which shoot less than 6- to 12-inches high at 25 yards. Either original or replica, they all seem to be zeroed for 100 yards and the sight deficiencies of the originals are more often than not faithfully duplicated on their replica counterparts. This may be changing though since Navy Arms Company president, Val Forgett, states that the next production run of his Remington replicas will have the sights corrected to aim at the point of bullet impact, at normal revolver shooting ranges. But until you can get a replica with sights that line-up where the bore points, all you can do is use Kentucky windage or fix the issue sights. Even then if you are really serious about your cap and ball shooting you will still want to install adjustable sights to cut that group size even more.

If you are really looking for accuracy, the only revolver is the Remington, either in .36 or .44 caliber. For more casual work any of the Colt or Remington and some of the lesser known cap and balls are quite satisfactory. After trying most of the percussion replica revolvers and several originals, the author chose

two .36 caliber Navy Arms replicas—the Remington New Model Navy for accuracy and the Colt Sheriff's Model for fun. The original Remington revolver is generally acknowledged as the best of all issue percussion revolvers and the Navy Arms .36 caliber replica on the .44 caliber New Model Army frame is potentially a great shooter.

Issue rear sights include notches on the hammer spur on Colts and V-grooves down the top strap on Remingtons. Front sights include posts and blades—all invariably too short. Sometimes you can overcome them by holding under, varying the powder charge, or using two targets at once (one for aiming and one for bullet impact). But, the only really satisfactory and permanent solution is to modify the sights.

The first step is to test fire the revolver with issue sights at the range at which you shoot most. Shoot 5 or 6 shots from a rest using your normal sight picture to determine the bullet impact point and group. Then vary the sight picture, and this usually means hold under, until the balls hit the bullseye. Estimate the amount of hold-under at the front sight blade and NOT on the target. This will be in fractions of an inch and will give a rough indication of how much correction is needed.

The amount and method of correction obviously depends on the type of revolver. Before starting, however, fix this sight relationship in mind for any revolver. To LOWER the bullet impact point, RAISE (build-up) the FRONT sight and LOWER (deepen) the REAR sight, or both. Do exactly the opposite to

and a flat-base, ramp front sight for \$16.75.

Remember two things about installing new rear sights. First, install it as far to the rear of the revolver as possible to avoid shortening the sight radius. Second, the new line of sight will usually be higher than that of the issue sight. Thus, the front sight must be raised enough to compensate for this change as well as for the original correction.

Issue front sights are usually: 1) blade/post-type screwed or soldered to the barrel, 2) post-type screwed or pressed into the barrel, and 3) blade-type soldered or keyed into a slot in the barrel. Blade/post front sights are typically found on New Model Remington revolvers. On replicas it is soldered into a hole in the upper barrel flat and on originals it is screwed into place with a clockwise motion. The issue sight can be replaced by a similar, but higher blade/post made from 1/4 inch iron rod soldered into place. However, such a high sight tends to catch on things and a more versatile and better looking replacement is a dovetail-base blade sight. On my Remington, the blade is about 3/8-inch high and 1/16-inch wide. It was made from a Dixie Gun Works Kentucky rifle front sight which was built up more than the necessary height and then filed down.

An undersize dovetail slot was then filed into the barrel, removing the issue sight hole. Make sure that the base of the slot is parallel to the upper barrel flat and the front and rear edges of the slot are at right angles to the edges of the flat. The depth of the dovetail need not exceed 3/32-inch. Always clamp the barrel in a vise to steady the work.

On such revolvers as the 1851 Navy Colt replica, a tapered post sight is screwed into the barrel, usually with a clockwise motion. On my Navy Colt Sheriff's Model, a new sight was made from a 1/8-inch diameter brazing rod with a 3-48 thread. The European threads in the barrel hole were also recut to the 3-48 thread with a bottom tap. The post can be soldered in place if desired. It is 9/64-inch high with a squared off top. Dixie Gun Works furnishes a dovetail base, windage adjustable, cone-shaped front sight for Remington revolvers at \$3.00 which can be used. The cone shape is best filed to a 1/16-inch wide rectangular cross section as viewed down the line of sight. On any but the 1851 Navy replica this sight may be too low to provide complete correction.

You can build up a blade sight

with silver solder or braze. Also add enough material to widen the top of the blade so that you can shape it to a flat-top, rectangular cross section when viewed down the line of sight.

To cut the group size even more or just to have more shooting fun, you can add a shoulder stock—and with no Federal firearm law problems, as long as you stick to non-cartridge revolvers. On such revolvers as the Colt 1860 Army or 1861 Navy, you need only lock the stock in place and start shooting. On most other percussion revolvers, some modification is required. Navy Arms sells a shoulder stock to fit their 1851 Colt Navy for \$29.95. This stock does not require any recoil shield cutouts or fourth screws as are found on the 1860 Colt Army replicas. Instead, it uses an elongated hammer screw and this makes it possible to adapt the stock to any percussion revolver with a Colt Navy size frame and grip.

Surprisingly, the Navy Arms 1851 Colt replica must be modified to use this stock, even though the stock is designed for this gun. An elongated hammer screw is furnished with the stock, but a stock locking lug recess must be cut in the back of the butt strap.

On the Remington replica you have to make a new elongated hammer screw since the Remington frame is narrower than that of the Colt. If you have a lathe, you can duplicate the Colt screw, but with appropriate dimension changes for the Remington frame.

Screw the bolt into the frame and cut off equal lengths on each side of the frame to fit between the stock extensions. Remove the bolt and cut the threads on the left end of the bolt. To make the lock nuts, screw a nut tight against the head of an

other bolt and chuck the bolt in a drill motor. Turn the nut down to about 5/16-inch diameter using a flat file as the cutting tool. Round off the outer edge of the finished nut to fit the inner contour of the stock extension groove. Install the screw in the frame, screw the nuts on tightly, attach the stock, scribe the outline of the locking lug recess, and cut the recess. When done, lock on the stock and you are ready to shoot your pistol-carbine.

There are several precautions you must take, however, when shooting a percussion revolver equipped with a shoulder stock. DO NOT lean forward into the stock. Instead keep your head back as far as possible. No matter how far back you are, you may still feel some gas and air blast so always wear shooting glasses. Also NEVER place the hand you use for steadyng the gun forward of the pistol grip. Use a two-hand grip hold.

Until you replace or at least modify those cap and ball sights they will be something to overcome rather than an assistance in your shooting. Once they are fixed, the improvement in accuracy is often phenomenal. Thus a Remington revolver with Micro sights in the hands of an expert can shoot considerably less than 3-inch groups at 50 yards. On a good day with my .36 caliber Remington Navy replica and its square notch rear and dovetail-blade front sights, I can hold under 3-inch groups at 25 yards and about 2-inch groups using the shoulder stock. My short-barrel Sheriff's Model Colt replica will shoot a little over 3-inch groups at this distance with post front and square notch rear sights. Before improving the sights, I spend much of the time figuring out just what blank spot on the target to aim at to hit the bullseye.

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Pressure Factors IN CENTER FIRE RIFLES

I. Importance of Pressure and Its Measurement

Every few years, some handloader asks the technical writers of a shooting journal for a means of estimating maximum chamber pressures for various loads. For example, back in 1960, a handloader asked the editors of a popular magazine:⁽¹⁾

Are there any means of calculating, in advance, the pressure and velocity of rifle ammunition? Even though verification measurements of these quantities might then be advisable on a sufficient number of representative loads, the amount of such testing could be reduced and the results closely predicted. In their reply, the editors stated that the burning of smokeless powder in small arms is

. . . on such a small scale that the effect of variations in conditions, including uncontrollable and even unknown ones, is disproportionately great. Accurate prediction of small arms pressures has been found impossible. Some estimating of velocities can be done, but only by adjusting on a basis which amounts to little more than comparison with a similar load which has been measured.

This has been the general view taken by most technical writers on chamber pressures because there are so many variables which complicate the correlation of pressure and velocity data in small arms. However, after more than four years of research in internal ballistics at the University of Michigan, we believe that we can provide a more positive answer to the question that handloader raised. The complexity still exists: we have defined over 20 variables which influence pressure and velocity, but a correlation of pressure and velocity is possible which would allow prediction in advance of firing. Of the 20 or more variables now known, some are major in their influence on pressure and velocity, while others have only a minor effect.

This article is the first of a series planned which will discuss some of the major variables which influence pressure, and how their influence is taken into account when trying to

predict pressure and velocity. We will introduce the subject in this first article, however, with a more general discussion of pressure and the instruments used for its measurement, namely the crusher gage, the piezo gage, and the strain gage.

Importance of Pressure in Safe Handloading

Most handloaders know that the safe handling of a rifle requires a knowledge of maximum chamber pressure, and how it is influenced by bullet weight, powder load and case volume.*

When accidents occur at the breech end of a gun, the cause can most often be traced to excessive chamber pressure in the cartridge and gun. Modern high-powered bolt action rifles operate with chamber pressures of 50,000 psi (crusher values in pounds per square inch) and over. This represents a tremendous force which, if released in the breech outside the cartridge chamber, can disintegrate the receiver, magazine, and surrounding stock.

Blowups from excessive pressure can result from too much head-spacing of rimless cases, which leaves the cartridge case without sufficient support for a chamber pressure that might be safe in a correctly head-spaced gun. Oil in the chamber can reduce the friction between the case and chamber so that the chamber pressure puts a greater part of its force on the bolt. This can cause failure in some of the weaker types of actions. And, of course, plugged bores, excessive powder loads, or the wrong type of powder can also produce failures.

Regardless of the conditions that result in failure, however, it is the chamber pressure that produces the force of destruction. Thus, whether we are designing the gun, testing it, or shooting it, the maximum chamber pressure must always be of prime concern. Safety depends upon keeping the maximum chamber within safe limits, and muzzle velocity and accuracy, too, and influenced by it.

Measurement of Chamber Pressure

The two most widely used methods of measuring chamber pressures are the crusher gage and the piezo gage. The strain gage is also used.

Both crusher and piezo gages are most often used with a heavy, cylindrical "test" barrel attached to a

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heavy, extra strong receiver which is securely mounted to a heavy frame suitable for absorbing recoil. Small cylindrical holes for the pressure pistons are drilled and honed into the barrel above the chamber. Such special equipment is generally not available to the average handloader.

In comparison, strain gages can be mounted directly on the surface (without the need for drilling holes) of any barrel used for hunting or competitive shooting. But a special instrument, usually an oscilloscope, is needed to read the strain gage response to pressure, and this instrument is again not usually available to the handloader.

If the handloader is using data from these different means of measurement, he should be familiar with the differences which will exist among the results obtained and the significance of these differences. Thus, one of the objectives of this and future articles is to assist in interpreting data from different sources.

An excellent discussion of two of the major means of chamber pressure measurement are to be found in *Innere Ballistik*, by Professor Waldeimar Wolff of Dresden, East Germany.⁽²⁾ The following consideration of the crusher and piezo gages is taken from a translation by Professor Brownell of this excellent book.

This article to be continued in April issue with gages used (crusher, piezo, strain) and other information, with reference diagrams, etc.

REFERENCES

1. Letter to the "Dope Bab," *American Rifleman*, Vol. 108, No. 1, 1960.
2. Wolff, Waldeimar, *Innere Ballistic*, Dresden, East Germany (1961), Chapter 6.

* These and other factors will be discussed in detail in future articles in this series.

Using Bullet Shock Waves

TO COUNT THE NUMBER OF SHOTS ON THE RECORD TARGET

By PETE HOROWITZ

Last summer Ed Shilen pointed out the need for some sort of automatic shot counter to eliminate backers at their monthly club shoots. He also suggested using the turbulence created by the shot since it was so strong it could be seen through a scope when using high power loads.

I thought about it for a while and came up with a simple counter which will distinguish sighters from record shots. It is conceivable to use the same method to distinguish crossfires and indicate approximately where they came from (with no backers).

A microphone is placed above, and another below the target equidistant from a dividing line between record and sighter target. After a shot hits the target its symmetrical shock wave reaches the closest microphone first. The shock wave from a shot above the line will always reach the upper mike before it reaches the lower one; and a shot below the line will always reach the bottom mike before the top one.

The electronics consists of the following: a two-input "gate" connected to the two mikes which gives no electrical output if it gets a signal from the bottom mike first and gives an electrical output if the top mike delivers a signal to it before the bottom mike does. The output signal from this gate drives a counter which sits at the range officers table. A counter for each bench can be included so the shooter knows when he is finished.

Technical Discussion

In order to know the answer to questions such as: How accurately can this gadget measure, what quality parts are needed; How reliable is it in the presence of gun blast and disturbances such as a bullet striking an adjacent target, the nature of the shock wave must be known.

The air pressure cross section of a bullet shock wave has the form of a single period sinusoid (bear with it) for close proximity to the bullet's path. As the point of measurement (where the mike is placed) moves farther away from the bullet's path the pressure cross section of the traveling shock wave changes. This is a change at distances greater than 50 bullet diameters from the bullet's path (15 inches for a .30 cal. bullet). This change is due to the fact that

the compressed air particles in the wave are traveling faster than the normal sound velocity while air particles in the rarefaction (lower than atmospheric pressure) zone travel slower. The result is that a sharp high-pressure front builds upon the leading edge of the traveling shock wave. This steep pressure front is only about one thousandth of an inch in thickness which means that we can measure the difference of displacement between two shots to that order of accuracy in uniform air; and we can also measure absolute position above or below the dividing line on the target by that sort of precision with ideal equipment.

It is significant that the pressure level in this wave (145 decibels above .0002 microbars at 20 feet from the path) is high enough to damage an ear if it is repetitive at a high enough rate. This is much louder than the sound of the muzzle blast at 100 yards since that is not harmful to the ear, and therefore the microphone won't have trouble distinguishing the two apart. I am not on too solid ground in my assumption of the muzzle blast level but in any event baffling of the mikes will be necessary for other reasons and a modified baffle to include muzzle blast effects if they exist is not a problem.

The disturbance from shots on other targets however will require a simple baffle on the microphone. If the desired shot lies within a distance of four feet (a two foot long target and each mike fifteen inches above and below the target) and the undesired shots on the next target are only five feet away; the shock wave from the other target can be almost as loud as the desired one (the peak shock pressure falls off as distance to the minus three fourths power).

Baffling will make the mike highly directive which is the desired approach in this case because the target is narrow in the horizontal direction.

A simple baffle can produce a drop in peak pressure by a factor of eight at an angle of thirty degrees outside the acceptance angle.

The cheapest possible electronic parts will measure this 'pulse' without distortion, but a run-of-the-mill sixty cent microphone will not. The best the microphone can do is about

four tenths of an inch resolution which is probably good enough.

The electronic filtering used to enhance the leading edge of the electrical pulse produced by the shock wave on the mike will at the same time discriminate against typical outside sound such as wailing, bragging, laughing, revving up cars, etc.

Estimated cost of parts for each target runs around \$25.

Reference for all the bullet shock wave information is:

Snow, W. B., "Survey of acoustic Characteristics of Bullet shock waves" I.E.E.E. Transactions on Audio and Electroacoustics December 1967 pages 161 - 176.

Firearms Tax Matters

SUBPART C.—FIREARMS TAX RULINGS AND DECISIONS UNDER CHAPTER 53 OF THE INTERNAL REVENUE CODE OF 1954 AND THE FEDERAL FIREARMS ACT

Rev. Rul. 67-424

The length of the barrel of a shotgun or rifle is determined by the distance between the breech and the muzzle of the weapon.

Advice has been requested as to what measurement denotes the length of a shotgun or rifle barrel for National Firearms Act purposes.

Section 5848(1) of the Internal Revenue Code of 1954 specifies that a shotgun having a barrel or barrels of less than 18 inches in length, or a rifle having a barrel or barrels of less than 16 inches in length causes such weapon to come within the purview of the Act.

It has been determined that to accurately ascertain the barrel length of a shotgun or rifle, the bolt or breechblock of the weapon should be closed, the weapon cocked, and a rod inserted down the barrel through the bore until it contacts the face of the bolt, standing breech or breech-block. The rod then should be marked to denote the barrel end, withdrawn from the weapon and measured. This measurement will determine the distance between the breech and the muzzle of the weapon. A barrel length so determined which is less than 18 inches in length on a shotgun or less than 16 inches on a rifle will establish that the weapon does come within the purview of the National Firearms Act.

Accordingly, it is held that the length of the barrel or a shotgun or rifle is determined by the distance between the breech and the muzzle of the weapon.

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